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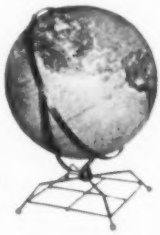

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VOLUME LVIII JANUARY 1959 NUMBER 1

THE IMPACT OF GEOGRAPHIC LOCATION UPON SWEDEN AS A BALTIC POWER

J. S. HAUPERT
Sacramento State College, Calif.

Sweden is a Baltic power of slightly over 173,000 square miles with a population of 7,300,000, occupying about three-fifths of the Scandinavian peninsula and the two islands of Gotland and Öland in the Baltic Sea. The greater part of Sweden's extensive and irregular coastline of over 1,000 miles faces eastward and therefore opposite the Soviet or Soviet-dominated coastal littoral of almost a thousand miles from the Gulf of Finland to the West German port of Lübeck on the Southern Baltic (Fig. 1).

Two concepts of political geography have remained constant in the evaluation of the location or position of a sovereign state. One is concerned with the maritime state with close contacts with the sea; the other, the continental or interior state with few, if any, maritime accesses. Sweden, centrally located among the other states of Northern Europe, occupies a uniquely strategical location of importance possessing an extensive North Atlantic littoral along with her Scandinavian neighbors, Norway and Denmark. However, the more significant forces which have tended to shape the course of Swedish history have been continental in origin, and the Baltic Sea became the arena of combat for several of the northern empires seeking to extend their influence.

The Baltic Sea has been called the "northern Mediterranean." The term is not altogether inappropriate as a maritime area tho it includes a number of differing geographic regions with contrasting climatic conditions and corresponding vegetation types. Rather than a unifier of cultures and political regimes as the Mediterranean has been, the Baltic separates not continents, but highly diverse lands and cultures, and because of the narrow and shallow outlet, and the large drainage basin surrounding the Baltic, its waters are far less saline than those of the Atlantic or Mediterranean. An important effect of this is an unusually long icy season

Fig. 1

when navigation is difficult and precarious. In the event of an abnormally low temperature over an extended period, the effects of "geography" upon "history" may become not only apparent but highly significant as well.

The importance of the Baltic and its hinterlands has depended in the past upon several factors. Among these have been the food-raising capacities which have been somewhat restricted particularly in the Northern Baltic regions where human population is scanty because of limitations of soil and climate. On the other hand, the presence of cold shallow waters mainly adjacent to the Swedish coast has accounted for the continuance of the vital fishing industry. Another has been the availability of natural resources conducive to the fostering of regional centers for industrial growth with the ensuing competition for influence over and domination of natural resource areas. Another factor has been the establishment of trunk routeways that pass thru the Baltic and consequently its development as a communication center where north-south lines have been crossed by east-west routes. Convenient and important itineraries can make an area that is otherwise poor in agricultural or natural resource development vitally significant in terms of political and economic international relations. It is no wonder then that in the case of Sweden, we have seen the development of a sizable merchant marine of world importance and a coastal fleet engaged in the southerly movement of iron ore and forest products for export. And finally, one must consider the human element in any anthropo-geographical analysis of a region. The historical significance of a region is mainly dependent upon its inhabitants.

The Baltic coastlands have generally produced since the 16th century a surplus of essential commodities of international importance: foodstuffs, naval stores, iron, hemp and flax, sail-cloth, and timber exported to the western maritime states, especially the British Isles, Holland, and France. The naval stores of the Baltic were indispensable to the continuance of British naval and commercial power, since sufficient high quality timber was lacking in England. Sweden and the other Baltic States lacked early development of certain manufactures such as woolen and cotton textiles available from England, and coupled with the demand for varied tropical products which the carrying trade furnished, a steady demand was created for these imports in exchange for bulk goods.[1] Two historic incidents illustrate the importance of British access to the Baltic: Nelson's bombardment of Copenhagen in 1801, thus securing again free goods and contraband and, later in 1939 and

[1] W. G. East, *An Historical Geography of Europe*, London: Methuen, 1948, 396-397.

1940, when Soviet advances into Finland and the Baltic States and the German seizure of Denmark and Norway, created such grave concern in the Supreme Allied War Council that a plan was contemplated to free the Baltic area from a German-Soviet military and economic domination with the resultant threat to Britain's northern flanks.

Dominium Maris Baltici

No one can doubt the historical significance of the Baltic regions; however, the modern observer of the world scene rarely meets with references to these regions with the occasional exception of Sweden, but more particularly the Eastern and Southern Baltic have escaped current analysis. Our primary purpose here is a consideration of Sweden's role in the Baltic.

From the 9th thru the 11th centuries, the so-called "Viking Period," the Baltic became strife torn in a continuing contest for its possession. Swedish Vikings or Varangians, in preference to expansion into North Sea realms, dominated by Norwegian and Danish conquerors, chose instead to develop the southeast trans-Baltic river trade route via the Western Dvina, Volkhov, and Dniepr systems to the Black Sea and Byzantium, handling the movement of furs, honey, wax, grain, and slaves in return for luxury items and metals. Eventually the Varangians were ultimately absorbed in the Slavic sea and Scandinavian place names disappeared from northern Russia. In the 12th century, the Swedes succeeded in conquering and Christianizing Finland and a century later Viborg and western Karelia were wrested from Novgorod. For the next two centuries Denmark and the merchants of the Hanseatic League vied for control of the Baltic and Northern Europe, and Lübeck became "Queen of the Baltic" in the period of Hanse supremacy. The decline of the League of German merchants and their withdrawal from Visby and the other Baltic ports together with the political consolidation of Sweden and the rise of the House of Vasa, made possible the great wave of Swedish expansion and the acquisition of the eastern Baltic lands of Ingria, Estonia, and Livonia in the 17th century.

From the beginning of the 17th century under the victorious banner of Gustavus Adolphus, to the early 18th century, Sweden was the paramount power in the north turning the Baltic into a Swedish lake with the addition after the Thirty Years War of

Rügen, western Pomerania, and the Oder River ports. Two new states, Russia and Prussia, appeared along the Baltic shores and the former, in search of warm water ports, successfully challenged the ambitious Charles XII. The Peace of Nystad presented Peter the Great the eastern Baltic, and subsequent partitions by Russia and Prussia of the Polish-Lithuanian Commonwealth gained the southern Baltic from Sweden—thus altering profoundly the balance of power with the subsequent and final reduction of Sweden, limited by smaller material resources and manpower, to a second rate power. The Baltic was still an international problem as England and Holland remained to challenge violations of the right of free shipping.

DEVELOPMENT OF NEUTRALITY POLICIES

The 18th century was dominated by imperialistic struggles of the great powers of western Europe leaving Sweden to develop the means of self-preservation—receiving subsidies, joining alliances, and cautiously expanding foreign trade. A challenge to maritime freedom came with the Napoleonic continental blockade. The Emperor laid great stress on the importance of the Baltic and was particularly irate with Sweden for her refusal to join the blockade. Despite the changing fortunes of war and the demise of Napoleonic Europe, Sweden's plight was only worsened with the loss of Finland and the Åland Islands to Russia in 1809. Not withstanding the compensation of Norway in 1814, Sweden's influence in the Baltic was negligible and Russian control of the Åland Islands placed Stockholm in a most unfortunate strategic position. Altho at peace with one another since then, traditional suspicion and fear have motivated Sweden to draw closer to Germany and Great Britain as well as to Denmark and Norway.

Sweden's occasional neutrality before 1814 had been overwhelmingly opportunistic, but during the balance of the nineteenth century, Sweden embarked on a neutrality policy deliberately aimed at keeping out of war and balance of power combinations. National independence, security, internal development, and foreign trade were of foremost importance to Sweden's resurgent development that its geographical position now made possible. Sweden no longer lay athwart the path of the armies of the great powers to the south, tho two of the main adversaries, Imperial Germany and Tsarist Russia, held the Baltic shores opposite Sweden.

Struggle for Neutrality in Two World Wars

Peaceful dissolution of the union of Norway and Sweden occurred in 1905, and the latter was reduced to its present size. Less than a decade later general war broke out in Europe and the Scandinavian states immediately declared their neutrality. Sweden's neutrality, however, was slanted in favor of Germany particularly after the Bolshevik revolution with the hope that Finland with the Aland Islands if freed, would provide a necessary buffer state in the northern Baltic to future Russian expansion westward. The Soviet recognition of Finland and the Baltic states in 1918, coupled with the amicable settlement of the Aland Island controversy in 1921, gave adequate assurance to Sweden of the *status quo* in the Baltic Sea as it was still a barrier to aggression in the existing stage of war techniques.

At the outset of World War II, Sweden again declared neutrality; however, by now the Swedes faced a resurgent Germany in collaboration with the dynamic and aggressive Soviet Russian state. Like Finland and the other Baltic states during the inter-war period, Sweden by the summer of 1940, following successful Soviet diplomatic and military *démarches* with Finland, Estonia, Latvia, and Lithuania plus German military successes in Denmark and Norway, found itself reduced to the role of a buffer state, isolated, and with no assurances or guarantees from the western Allies. Not only was Sweden's economy jeopardized by the dominance of the Nazi autarky, but also national defense was made impossible as the Baltic could no longer deter modern bombing and shore landing techniques.

The actual course of Swedish neutrality varied according to the limited possibilities open during various phases in the shifts of the chief belligerents. Almost from the beginning Sweden's "alliance-free, armed neutrality" policy was modified as in the case of the Soviet-Finnish War when international law was actually violated with Stockholm's decision of nonbelligerent intervention involving limited aid to Finland. Of foremost consideration, other than common bonds of tradition, was the fear of Soviet possession of the Aland Islands, a mere 100 miles from the Swedish capital. Subsequently, the eastern Baltic changed hands and from 1941, it became a German lake virtually closed to the outside, thus isolating Sweden. In addition, Sweden's vital sea lanes into the North Atlantic were exposed to the British blockade.

Official neutrality was altered once again to coincide with German demands for transit facilities for troops and war goods enroute to Norway and Finland. The factor of economic interdependence of Sweden and Germany was inevitable with the Baltic *mare clausum* as both states found the exchange of raw materials and finished goods necessary to defense in the case of Sweden, and to Germany, the imports of iron ore, cellulose, and ball bearings for the maintenance of the war effort. The Swedes in turn imported coal, coke, fertilizers, and non-ferrous metals amounting to 52 per cent of all imports in 1941, for example, while 41 per cent of all Swedish exports of that year were routed to Germany. Of these exports, it is significant to show that the shipment of iron ore to Germany in 1941, amounted to 9,477,000 tons and only 62,000 tons to all other states.[2]

Swedish Lapland contains more than nine-tenths of Europe's high grade hematite ores which had direct rail access in World War II to the year-around ice free German controlled port of Narvik in Norway plus the more strategically practical ports of Luleå on the Gulf of Bothnia, accessible only in summer, and Oxelösund, 60 miles south of Stockholm, for use in winter. Narvik, more important because of the shorter rail haulage involved than the two Baltic ports in Sweden, was of little use to the Germans after 1940, with the risks involved of running the British blockade. By 1943, Sweden's position relative to Germany was greatly improved resulting in a substantial reduction in iron ore and ball bearing exports to the latter by 1944, and an increase in the air-borne shipment of ball-bearings to the British Isles. Despite Alied superiority in air power after 1944, the control of the Baltic by German surface units persisted to the end.

SWEDEN'S POST-WAR POSITION BETWEEN EAST AND WEST

In 1945, the political geography of the Baltic Sea was profoundly altered with the changes in the sovereignty of the eastern and southern littorals. Soviet armies reoccupied the Baltic Union Republics plus northern East Prussia incorporating this into the Russian Union Republic as Oblast Kaliningrad. Soviet control was also established over the Baltic coasts of Poland and Germany with a plethora of comparatively ice-free harbors and bases with ship building and repairing facilities such as the island of Rügen only

[2] *Foreign Policy Reports*, Vol. XIX (May 15, 1943), p. 54.

50 miles from the southern tip of Sweden, Ventspils, 100 miles east of Gotland, Baltiski in Estonia and Porkkala-Ud in Finland, both only 200 miles from Stockholm. Furthermore, the Russian boundary in the north along the Finnish "waist" was now reduced to 175 miles from the Swedish Torneå River boundary, and the completion of the railroad from the latter across Finland to the juncture of the Leningrad-Murmansk line was feared as a direct link from the Soviet Union to Sweden. Finland's effectiveness was now considerably lessened as a buffer state, and no longer was there a powerful Germany to serve as a balance to the Soviet Union.

On the other hand, the establishment of the North Atlantic Treaty Alliance with the inclusion of Norway and Denmark has had a stabilizing influence in the Baltic. The Danish island of Bornholm —20 miles from the Swedish coast, and the naval bases at Karlskrona, Stockholm, and Gotland have served thus far as partial deterents to the Soviet challenge to Sweden's "alliance free, armed neutrality." Tho not a member of NATO, Sweden would have access in time of war to western aid thru Göteborg, chief port and naval base, which also would share with Denmark the responsibility for control of the exits of the Baltic—the Öresund and Danish Belts. The neutralization of Finland has had its effect as well upon Sweden's desire to maintain the *status quo*.

Since 1957, the Soviet Union has advanced the concept of "The Baltic—A Sea of Peace," a slogan interpreted in Sweden as part of the Soviet goal for the neutralization of central Europe with the exclusion of western powers from the Baltic which would obviously be adverse to Swedish national interests. Memories still linger of the shooting down of two unarmed Swedish reconaissance planes by Soviet fighters in June, 1952, near the island of Gotska Sandön about 50 miles northeast of Gotland, well beyond the 12 nautical mile limit of Soviet Baltic shores. Altho refusing to accept the legal validity of the Soviet 12 mile claim, Sweden has not yet been able to solve the problem of how to protect the fishing fleets. Many Swedish vessels in recent years have been seized as far as 30 to 40 miles from Soviet-controlled coastlines.

Sweden's Foreign Trade

Sweden's economy depends far more upon the Baltic for its support than the rest of the Scandinavian states. The export of iron ore and wood products via the traditional Baltic routeways and

the continuance of domestic coastal trade and maintenance of the vital fisheries have all re-emphasized Sweden's position. Sweden has followed an autonomous foreign trade policy that involves strict control over the export of munitions and other war materials. Between 1946 and 1951, Sweden granted the Soviet Union a credit of $200 million of which the latter only used half of this amount. Swedish deliveries to the Soviet Union consisted mainly of equipment for hydroelectric power plants, housing construction, locomotives, and fishing vessels. At the present time, Soviet-Swedish trade is on a cash and barter basis, virtually all of it regulated by annual bilateral trade and payment agreements. In the past 10 years, Sweden has imported mainly wheat, chromium, and manganese ore from the U.S.S.R., and coal and coke from Poland and Czechoslovakia respectively. Exports to the Soviet European orbit have in turn included iron ore, ball bearings, and steel.

In 1958, the trade agreement called for the largest share of imports from the Soviet bloc in the form of solid and liquid fuels with lesser amounts of chromium and manganese ores, ferroalloys, asbestos, and aluminum. Exports amounted to the same value as imports and included mainly industrial equipment, viscose and rayon pulp, and iron ore. Currently, exports to the Soviet Union represent only about 2 per cent of Sweden's combined export trade. Eight years ago this figure stood at about 10 per cent with the U.S.S.R. and its European satillites. In terms of value, 50 per cent of Sweden's trade is with western Europe, exclusive of Norway and Denmark. The German Federal Republic, the United Kingdom, and Belgium now import about 90 per cent of all iron ore exported and all are the best markets for cellulose exports. West Germany in turn is the leading supplier of coke to Sweden.[3]

In any event, Sweden's political adherence to armed neutrality, a free trade policy with all states, and continued ideological and cultural affinity with the West seem most feasible for security. Sweden would be likely to depart from this position only if there were some spectacular Soviet aggression in the Baltic, such as the outright seizure of Finland, which at present doesn't appear likely. It is a reasonable assumption that the Russians consider Sweden's neutrality of benefit to them as the limits of NATO would continue to be confined to the Norwegian-Danish eastern boundaries. To foster a neutral bloc of Baltic powers with Sweden and Finland as a

[3] *Editorial Research Reports*, Vol. II, No. 8, 1952, p. 576.

nucleus, would serve Soviet purposes for the establishment of a buffer area for the security of the western frontiers, guarding metropolitan Leningrad and other vital peripheral regions fronting on the approaches to the inner industrial and agricultural core areas.

WATERSHED MANAGEMENT: PAST AND PRESENT

RAY GILDEA JR.
University of Florida

"It is fortunate that today there is a growing recognition on the part of land users and the public generally of the need to strengthen conservation in our upstream watersheds and to minimize flood damage. This should be done as an integral part of our total flood control and water use program. It is important, too, for groups of farmers banded together in local organizations, such as soil conservation districts and watershed associations, to take the initiative, with the technical advice and guidance of the appropriate Federal and State agencies, in developing adequate plans for proper land use and resource improvement in watersheds throughout the nation." So stated President Eisenhower in his special message to Congress on July 31, 1953.

Watershed History

The precise origin of the watershed concept as applied to the eternal triangle of man, land and water cannot be determined. Some state that watershed protection was the main objective of the presidential order of March, 1891, setting aside national forest reserves. Awareness of the importance of small watersheds to major river basins was reflected in the provisions of the 1936 Flood Control Act.

Before the passage of the Watershed Protection and Flood Prevention Act (P.L. 566), the U.S. conservation program was concentrated on two extremes. On the one hand, the Flood Control Act authorized works on 11 watersheds of the large basin variety scattered from New York to California and embracing over 30 million acres.

At the other exereme, the Soil Conservation Service, operating

thru Soil Conservation Districts, was helping to solve soil and water problems on farms and ranches by working with individual farmers and ranchers.

Thus, the basin-type approach was primarily concerned with the problems of large reservoirs and major streams. The Soil Conservation Service method concentrated on small operating units. What about the problems in between? In reality, there was no program to deal with the middle groups.

In order to plug this gap in our overall water management program, the 83rd Congress in 1954 passed Public Law 566, which was broadened in scope in 1956 by Public Law 1018. The Watershed Protection and Flood Prevention Acts authorize the Department of Agriculture to assist state and local agencies in carrying out flood prevention and water management projects and provide for a project-type approach to soil and water conservation.

PRINCIPLES

One basic principle behind any Public Law 566 project is that of local initiative and responsibility in starting, planning, and maintaining the project. Owners and operators of affected lands and people in small cities protected by a stabilized water supply work together in a joint effort. Only local organizations can initiate a project, acquire necessary land easements and enter into contracts for structures. Types of organizations vary from soil conservation districts to irrigation, drainage and conservancy districts.

A second fundamental watershed principle is that conservation land treatment is the backbone of all watershed protection and flood prevention programs. This is why by law at least 50 per cent of the agricultural land above any structure must be planned for conservation land treatment. Farmers now understand why small check dams, grassed waterways and terraces must be installed to hold back water and keep the soil in place *before* water detention dams are constructed. In addition, people are beginning to appreciate the fact that if land treatment work is carried out, smaller and less expensive dams can be built, and their period of usefulness will be lengthened.

WATERSHED PROGRAMMING

Floodwater and sediment damage reduction measures are tailored to major considerations as: the retention of as much water as

possible where it falls, the installation of dams to hold back water and trap sediment, and the completion of stream and channel work to aid in carrying the water thru the alluvial flood plains with minimum overflows.

The extent of construction works is determined by careful planning with local people and by testing alternate measures from both physical and economic cost-benefit viewpoints. In determining whether benefits exceed costs, justifications are formulated on the basis of augmented costs and benefits for each of the separable project segments. The expense of technical assistance and planning services is not included in cost-benefit studies. The analyses used are based on primary monetary gains. Benefits may include reduction in damages from sediment and floodwater, increases in net revenue due to added production, and increases in the value of fish, recreation and wildlife resources.

As to local expenses, local organizations are *not* required to assume any part of the construction costs allocated to flood prevention. Local agencies *are* required to bear all installation costs for purposes other than flood control, which embraces the agricultural phases of watershed management.

A Type Example

To illustrate benefits, costs and other aspects mentioned above, a type example is offered. The area in question is that of the Lake Placid East Chain of Lakes Watershed, which is situated 14 miles south of Sebring in Highlands County, Florida (Fig. 1). This watershed is within the bounds of the Central and Southern Florida Flood Control Project and embraces an area 10 miles in length, 3 miles in width, or about 12,500 acres.

The area rainfall pattern is one of contrasts (Fig. 2). In 1946 the total annual rainfall was 34 inches, and in 1953 the total amounted to 74 inches. There are also wide variations from one season to another with maxima in July and September and minima in January and March. The area is also subject to occasional hurricanes.

As a result of the climate pattern, in the 1952-1956 period, maximum and minimum lake stage levels were separated by a distance of 6.5 feet. Lake stages generally declined from October to May and increased from June to September (Fig. 3).

The most important problem in the East Chain Watershed is

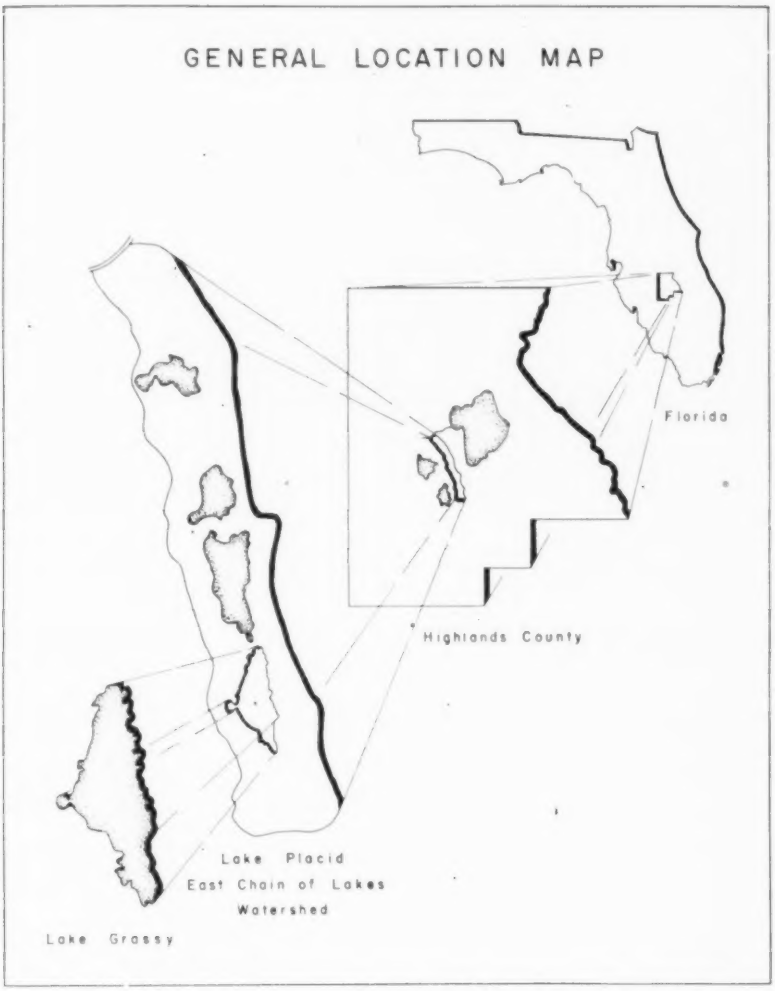
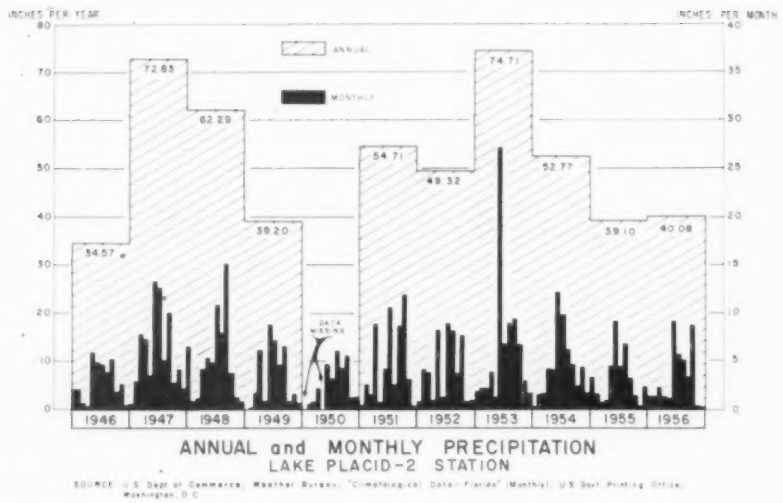


FIG. 1

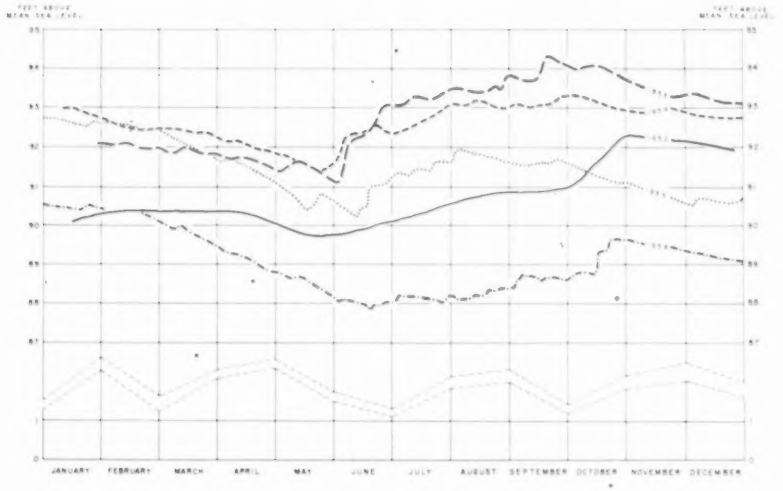
that of floodwater damage (Fig. 4). A major portion of the lands adjacent to the lake are low in elevation and subject to flooding. In some years over a thousand acres have been inundated. The hurricanes of 1928, 1933 and 1953 resulted in damages up to $1,500 per acre on intensely cultivated muck lands.



ANNUAL and MONTHLY PRECIPITATION
LAKE PLACID-2 STATION

SOURCE: U.S. Dept. of Commerce, Weather Bureau, "Climatological Data-Florida" (Monthly), U.S. Govt. Printing Office, Washington, D.C.

Fig. 2



LAKE STAGES - GRASSY LAKE - 1952-1956

SOURCE: Unpublished data collected by the U.S. Dept. of Interior, Geological Survey, Surface Water Branch, Field Office, Ocala, Florida.

Fig. 3

FIG. 4. Sample of flood damage to be corrected on the Lake Placid East Chain of Lakes Watershed. Scene is an Easter lily field on the south end of Lake Grassy, March, 1958.—(Courtesy of Soil Conservation Service.)

In order to counter both the drouth and flooding situations, one drop inlet, two drop spillways, and two check dams have now been constructed under Public Law 566. These specially-designed structures link the four major lakes of the area and should provide measures of stability and control that have not previously existed. It should be noted here that prior to construction all recommended land treatment measures have been completed.

The average annual project cost is estimated to be $2,576, and the annual benefits are computed to amount to $12,132. This means that the cost-benefit ratio is a favorable 4.7 to 1.

In order to raise their part of the finances needed for construction, the landowners assessed the lake front footage at 10 cents per front foot. The annual maintenance charges of about $1,000 per year will be paid for by county tax levies.

SUMMARY

It has been the aim of this paper to outline the much discussed watershed concept. Today's watersheds have as their goal a reasonably adequate use of resources acceptable to the people of the watershed area. Watershed management programs not only bridge the

technical gaps in our overall water conservation planning, but the administrative vacuum between the individuals and water control projects is effectively traversed. The watershed approach recognizes not only that conservation and water control problems are more resolvable within the boundaries of watersheds than in political subdivisions but also that national resource problems are a summation of the problems of individual watersheds.

FACTORS AFFECTING DEVELOPMENT OF THE STEEL INDUSTRY IN INTERMOUNTAIN AMERICA

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Iron and steel production in the arid, American Intermountain West is a recent development. Not until the World War II years and the post-war years did commercial production of any consequence come into its own in this area. Production now is largely concentrated in one plant—the Geneva Works of the United States Steel Corporation—the largest integrated steel works west of the Mississippi River. Located in the Great Basin area just west of the Rocky Mountains this plant is the focal point of the increased steel growth and production in western America.

It may be interesting to note *why*, as well as *how*, the development came about in this particular area among so many areas that were available in the mountain west and of the factors involved in the establishment of this plant south of Salt Lake City in the central part of Utah. *Why* this plant came into being can largely be attributed to the need for ship plate and structural steel shapes during World War II for West Coast shipbuilding. *How* it came into being was a matter of governmental decision with the United States Steel Corporation furnishing the technical direction necessary. The particular choice of location was largely due to the combination of vital basic factors including transportation, labor.

markets, climate, and population, as well as the available natural resources of iron ore, coking coal, limestone, and dolomite.

Essentially this article is a study in contrasts; it endeavors to contrast the area which was primarily agrarian (and why it was) prior to World War II to the manufacturing area it has largely become today (and why it has become so).

COMMENTARY ON THE FINDINGS

The impact of the building and growth of this particular steel plant on the economy of the Intermountain West, Utah, and the area surrounding the city of Provo has been important. Basically, population in the area of the plant increased almost 200 per cent during the span 1940 to 1950, and is still increasing. Savings and demand deposits have jumped over 600 per cent since 1940. Business and service industries in the area have increased more than proportionately to that of the state and region in the number of stores, number of active proprietors, number of paid employees, net sales and payrolls. Indices of wholesale trade and professional services also show a definite trend of development. Almost any index named or used points out rather dramatically the fact that growth and development has surged ahead tremendously due to the inception of this giant steel plant.

HISTORICAL GEOGRAPHY

A study of the Great Basin area is essentially a study in historical geography; it is a study of past circumstances and of changes in phenomena of concern to a geographical area. A century ago the Intermountain West was virtually a wasteland; it was a land of sagebrush and alkaline soils. Today much of it has a flourishing agrarian economy with industry rapidly developing.

Geographically as well as historically the roots of the iron industry wend their way deep into this agrarian economy that was predicated on a desire by the then small Mormon sect toward "building the Kingdom of God on Earth." Iron was necessary toward this end. Iron was available to these pioneers in the southern end of the Great Basin, and within two and a half years after the first pioneers arrived (1847) in the Great Salt Lake Valley the first pig iron west of the Missouri River was produced in what is now southern Utah. Here was the genesis of modern iron and steel manufacturing in the Intermountain West.

LOCATION MAP

Fig. 1

Setting

The Geneva plant lies in the midst of a peaceful farming community some 35 miles south of Salt Lake City (Fig. 1). This Utah Valley has a land area approximately twice the size of the state of Rhode Island at an altitude of around 4,500 feet. Towering peaks lie to the east with fresh-water Utah Lake to the west, and this valley's fertile soil supports the third-largest population in the

state of Utah—being exceeded in population only by Salt Lake and Weber counties.

The climate is that of a mountainous, inland, arid region. Extremes of weather are generally lacking and interruption to transportation and other services are rare. Relative humidity is low and constant. This low humidity factor is of economic importance in manufacturing in that it slows oxidation of wood, metal, and corrosive processes in general. An annual precipitation of over 14 inches at Provo indicates a slightly heavier rainfall in Utah County than in those comparable counties of Box Elder, Cache, and Salt Lake Counties to the north, but under that recorded at Ogden in Weber County.

BUILDING AND SUPPLYING THE PLANT

In 1941-42, at the request of the Defense Plants Corporation, the United States Steel Corporation designed and built the Geneva plant to meet the government's requirements.

The site—about six miles northwest of Provo—was chosen because it possessed adequate transportation facilities and was at a convenient distance from sources of iron ore, coal, limestone, and dolomite (Fig. 2). The accessibility of sufficient fresh water was another important consideration.

Construction of the plant began in March 1942, and the major part of the construction was finished by the end of 1943. Production started in December 1943, when the first coke was made. The first pig iron was smelted in January 1944, followed by the first open hearth steel in February 1944. Experimental steel plates were rolled the following month.

Upon its completion, the plant was operated for the government by the Geneva Steel Company, a new United States Steel subsidiary organized in 1943. The skilled personnel came to a large extent from U. S. Steel eastern operations and some from Columbia Steel, U. S. Steel's western operating subsidiary.[1] The majority of the working force was recruited from the native population, 75 per cent of whom had never seen the inside of a steel mill.

Upon completion in 1944 the Geneva Works included 252 by-product coke ovens, three 1100 ton blast furnaces, nine 225-ton open hearth furnaces, a 45-inch slabbing and blooming mill, a 132-inch

[1] U. S. Steel's west coast subsidiary, the Columbia Steel Company, consists of plants at Pittsburg, California and Torrance, California.

GREAT SALT LAKE DESERT
GREAT SALT LAKE
SALT LAKE CITY
GENEVA STEEL PLANT
N
GENEVA RAW MATERIALS
SCALE IN MILES
LEGEND
LIMESTONE - DOLMITE DEPOSITS
IRON ORE DEPOSITS
MAJOR WATER SUPPLY
MINOR WATER SUPPLY

Fig. 2

FIG. 3. Geneva Works of Columbia-Geneva Steel Division, United States Steel Corporation, the West's largest integrated steel operation, stretches out over 1502 acres at the foot of Mount Timpanogas, highest peak of the Wasatch Range, near Provo, Utah. Behind the plant can be seen the well-ordered pattern of the valley's farms. In the foreground, part of the 312-acre reservoir is visible. From left to right, the rolling mills, the blast furnaces and raw materials storage area, and the open hearths are visible. (Courtesy of U.S. Steel Corporation)

semicontinuous plate mill, a 26-inch structural mill and other numerous complementary facilities (Fig. 3). The scheduled capacity of the Geneva plant at that time was 1,150,000 net tons of iron; 1,283,400 net tons of steel ingots; 700,000 tons of plates; and 250,000 tons of structural shapes.[2]

During this same time a new coal mine was opened for the government at Horse Canyon, Utah, some 130 miles southeast of the

[2] Today the plant has a scheduled capacity of better than 1,321,500 net tons of iron; 2,077,000 net tons of steel ingots; 1,483,500 net tons of plates, strip, and sheets; and 400,000 net tons of structural shapes. This compares rather closely in iron and steel production with U. S. Steel's eastern Fairless Works, which has a scheduled capacity today (1958) of 1,252,000 net tons of iron; 2,200,000 net tons of steel ingots; and 1,274,000 net tons of plates, strip, and sheets. (Courtesy of U. S. Steel Corporation.)

Geneva plant. Mine production by the Columbia Iron Mining Company at Iron Mountain, about 252 miles southwest of Geneva, was expanded in order to supply iron ore for the new steel mill. It was necessary to provide facilities for the quarrying of limestone and dolomite at properties owned by the Columbia Steel Company near Payson, Utah, about 35 miles from the steel plant.

Factors Governing Location

In the establishment of any industrial plant, and especially of one the magnitude of Geneva, many factors must be taken into consideration. Obviously, the relationship of land (in all of its ramifications) to the economic factors of labor and capital are basic. But, *why*, among so many possible areas in the West, was Utah Valley, in central Utah, chosen as the site for this particular plant? Some of the main factors the government and steel technicians felt were of prime importance will be explored in the following paragraphs. Several of these characteristics are basic to many of the western industries; some are peculiar only to the time element or the particular industry.

Decentralization

The choice of Utah in its particular western setting was part of a plan to decentralize new war plants. An inland location was desirable at that time to forestall the possibility of bombing or invasion. It was also a precaution against a possible closing of the Panama Canal by enemy attacks, which would have severely affected the steel supplies of Pacific Coast shipbuilders.

This decentralization factor is as important in 1958 as in 1943. With the present, and very probable future international tensions of the "cold war" continuing, this now vital factor will continue in importance. Much of Utah and the Intermountain West in general offer this particular situation which is considered to be essential and vital to our national security.

Transportation

Transportation is vital to every plant with the magnitude of Geneva. One of the prime factors in locating the Geneva plant in Utah Valley is that the major railway lines of the area; the Denver and Rio Grande Western and the Union Pacific, converge at a point exactly adjacent to the plant.

The Union Pacific system serves almost all the west from this area, running to all points to the Northwest, Washington and Oregon, as well as southwest into Los Angeles and other southern California points, north into Idaho and Montana, and east to Omaha.

The Rio Grande serves Utah Valley from the east with its connections with the Burlington, Rock Island, and Santa Fe at Denver, and the Missouri Pacific and Colorado Southern at Pueblo. Westbound the Rio Grande and the Union Pacific both have direct connections with the Western Pacific at Salt Lake City and Southern Pacific at Ogden, serving California, Oregon, Washington, and the Northwest.

All lines have a reciprocal switching agreement in the area. Provo is a Utah common point for all rate making purposes, thereby making Utah Valley competitive on all rates into this area.

The area is also served by four major federal highways. United States highways No's. 6, 50, 89, and 91 converge within the Valley. Five major truck lines provide motor transport service. The truck lines with their interchange and trailers provide transportation to all major points in the United States.

LABOR

In analyzing the labor force of Utah Valley it is found to be rather typical of Utah's Mormon society. However, while population and labor patterns are typical perhaps of the state, they do vary somewhat from those of other areas of the nation in that Utah Valley has only a small percentage of population actually in the labor force. This is due to the large percentage of population under working age, the large percentage of population attending college (Brigham Young University), and the small percentage of women employed.

Nationally, up to 41 per cent of the total population is in the labor force, while in Utah Valley it more nearly approaches 31 per cent. Nationally, from 50 to 55 per cent of the population over 14 years of age is in the labor force, while in Utah Valley less than 47 per cent of the same age group is in the labor force. The presence of these factors tend to produce a labor force which is rather high in productivity (higher per capita production than in eastern plants), low in turnover and absenteeism (due largely to a settled population), versatile, and easily trained (highest education per steel worker in the nation).

Water

Since much of the West has not been richly, or even moderately endowed with water, industry can only migrate to those places where adequate water supplies exist. Water shortage has been a problem in the West since settlement yet it only affected agriculture until recently; now it is an acute problem for industry. Steel installations as large as Geneva require tremendous amounts of water, and this particularly vital factor is one of the primary reasons Utah Valley was chosen as the plant site.

To show the extensive use of water at Geneva statistics relate that water circulates at the rate of 200,000 gallons per minute thru the plant system. Of this, 10,000 gallons per minute are consumed and 2,225 gallons per minute are lost due to evaporation. A total of 204,000,000 gallons of treated water are circulated daily and 22,000,000 gallons of untreated water are used daily.[4] The entire Salt Lake City municipal water system in 1950 (population 188,000) distributed a daily average of 45.3 million gallons, which was about one-fifth the amount pumped daily at Geneva and only twice as much as is actually consumed by Geneva in a day.

Geneva has three main sources of water supply: 1) irrigation rights to 15,000 gallons per minute; 2) artesian wells producing 5,000 gallons per minute; and 3) the Deer Creek reservoir, furnishing some 5,000 gallons per minute.

The Geneva plant impounds the necessary water needed for opperations in a 312 acre reservoir averaging eight feet in depth, which is located on the west side of the plant next to Utah Lake. It has a capacity of 2,274 acre feet or 745,000,000 gallons. The water stored in the 312 acre Geneva reservoir is treated with approximately 100 tons of metaphosphate annually, in order to inhibit corrosion and scale, and with 112,000 gallons of sulphuric acid to reduce scaling.

In addition to the mountains as a source of water supply, the entire floor of Utah Valley is underlaid with several water-bearing strata from which water is obtained by drilling wells. Depth of such strata varies from 60 feet to over 1,200 feet. Wells yielding up to

[4] The term treated and untreated water may be confusing to those readers not intimately associated with the steel industry. A "treated" water figure may be misleading also as it is the same water recirculated many times through screens and filters which remove the "scale" and impurities from the water. An "untreated" water figure is simply the water run into the system from the ordinary water supply for the plant.

1,000 gallons per minute have been in operation in the valley for a number of years without adverse effect on the water table.

Existing reclamation projects, including transmountain diversion from the Colorado River Watershed, now augment the valley's water supply; and it is expected that water from this source will continue to increase as need arises.

COAL

Utah Valley has access to 92 billion tons of coal reserves, most of which are within 75 miles. Recoverable reserves, based on 50 per cent recoverability, total over 46 billion tons or enough to supply the entire United States need (some 600 millions of tons per year) for about 75 years. These coal reserves are largely of a bituminous and semibituminous character. However, it is only a marginal coking coal.

This readily available supply of coal together with low transportation costs make the delivered price of coal to Utah Valley compare favorably with any other section of the United States. The typical rate for dry slack coal, delivered in Utah Valley, runs about $6.90 per ton. This includes a charge of $4.65 for the coal and $2.25 for freight. This compares very favorably with the price of eastern coal (f.o.b. mines), but the comparative economic advantage to Geneva comes in the fact that transportation costs per ton of coal is much less than the per ton cost to the southern Lake Michigan plants.

Coal for the Geneva plant is drawn primarily from the Columbia Coal Mine and the Geneva Coal Mine. The Geneva mine, when it was opened, was the largest in the state. These mines, located 130 miles from Geneva in the Carbon area now supply all the coal for coking. The Columbia Coal mine is in Carbon County, and the Geneva coal mine is located at Horse Canyon in Carbon and Emery Counties. The coal required for the Geneva plant is estimated to be between one and one-half and two million net tons per year.

IRON ORE

Utah is particularly well endowed with iron ore of a superior quality. It is difficult to arrive at a completely satisfactory estimate of ore reserves since exploration is a now continuous process, but it has been estimated that there is at least a 75 year reserve of iron ore in the state.

Mining and transportation costs are favorable to the Utah steel

producer. High grade ores with comparatively low transportation costs per ton mile give a lower aggregate cost per ton than in other steel producing areas. The cost per long ton of iron ore in Utah in 1953 was $5.738 and $5.750 in 1954.

Favorable tax structures on Utah ores also reduce costs. In comparison to a ten year average of seventy-one cents a ton for Minnesota ores Utah ores average only four cents per ton in taxes.

In a study by the University of Utah on "The Western Steel Industry" the comparative assembling costs and transportation of Minnesota ores to Pittsburgh were *double* those for Utah ores. The cost of assembling iron ore for Gary was approximately 20 per cent greater than for Geneva. Further, ice-blocked Lake Superior interrupts transportation for nearly five months of each year.

A comparative analysis of iron ores by regions relates that Birmingham ores average 36.64 per cent, Mesabi ores 52.07 per cent, and Utah ores 56 per cent in ore content.

The estimated annual iron ore requirement for the Geneva plant is between two and three million net tons.

Limestone and Dolomite

The two additional raw materials needed in the production of iron and steel are limestone and dolomite, which are essential as fluxing agents. These are drawn from the Keigley Quarry, which is located near Payson in southern Utah County. Production of limestone and dolomite in Utah County is estimated at somewhat over 700,000 short tons per year, the majority of which is used for fluxing purposes at the Geneva works.

Markets

Today in our ever expanding economy, markets are constantly enlarging and becoming a more specific study in and of themselves. Markets, as we see them from the steel firm in Utah, radiate in all directions, but primarily to the West as shown by the location map.

In setting up this particular plant, the government and steel management noted the factor of strategic position in regard to the equidistance to ship yards in Los Angeles, San Francisco, Portland, and Seattle which were to receive the majority of production for ship building and repairing. The Geneva plant in Utah Valley is often likened to the hub of a wheel with the "spokes" going out to each major market. This has also held true for the post-war market

as they are exactly the same markets. Due to the extent of competition, marketing and sales data are closely guarded and about which the U. S. Steel Corporation is reluctant to release information.

SUMMARY

In developing the locational factors concerned with the Geneva plant in Utah Valley it has been of interest to note *why* the development came about in this particular area among so many in the state and region.

The factors determining the location of the plant were naturally predicated on the basic determinants of land as well as the economic determinants of labor and capital, plus certain sociological intangibles that are unique to this particular area. All the basic factors are present. Water, so vital, but so often lacking, is in sufficient abundance to operate a plant the magnitude of Geneva as well as satellite industries coming in the wake of Geneva. Raw materials of iron ore, coal, limestone and dolomite are located within a comparatively short radius of the plant and are in such abundance as to make it economically feasible to operate. Transportation is provided by two main rail lines thru the valley, the Rio Grande Western and Union Pacific, as well as a network of highways radiating in each direction of the compass. These lines bring in raw materials and transport the finished products to the principal markets of the Northwest, West, and Southwest. One of the unique features of the valley is the type and supply of labor available. The predominantly Mormon sociological influence on education has produced a worker more highly educated than the average steel worker and with a consequently higher rate of production. These vital factors form a setting for the location of iron and steel production in our western Intermountain America.

Preparing the 1959 and 1960 Programs

The annual Meeting programs in 1959 and 1960 will be prepared by President Adelbert K. Botts, State Teachers College, Trenton, New Jersey and Vice President John W. Morris, The University of Oklahoma, Norman, Oklahoma. If you have questions or suggestions please write to these men as soon as possible. The 1959 tentative program may be completed by June of this year.

CHANGING GEOPOLITICAL VIEWS

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In examining a state against its earth environment we suggest that location, space, physical and human resources reveal the problems and the thinking of a nation. It does reveal the desires, relations, future functions and most important, the strategies of a country.

The strategic needs of a country are studied by geopoliticians. We note that Billy Mitchell predicted the bombing of Pearl Harbor. Professor Ewald Banse, a German, gave complete outlines for strategy and tactics for the World War II Blitzkerig. In fact, German geopoliticians expected Pearl Harbor to be attacked as early as the summer of 1938. This information was available to the United States. The world had full access to Haushafer's and Banse's productions on world conquest. A book, "*Germany Prepares*," by Professor Banse, was published in London, 1934.

These predictions, warnings, and publications show the need for serious concern and study of the thoughts of geopoliticians. As an aid and a guide, there is a need for an Institute of Military Geography and Strategy in the United States to note the changes in methods employed by various countries to forward their international aspirations.

Whenever vast scientific achievements are realized, changes in geopolitical outlooks arise. We have seen the rhythmical cycle of dominance by land forces prior to 1500 A.D. altered by naval preeminence until World War II, when air power accepted their turn in being.

Had Alexander the Great in B.C. 356-323, been in the geopolitical game, he would have proclaimed the army the mainstay of his conquest of the known world. Admiral Alfred T. Mahan, American naval strategist, would chortle of Navy glories, and Russia's Krushchev would claim his scientists as space conquerors, and each would be correct at the time he was living.

Now then, as we notice the cyclical variations of each movements, ebb and flow of the tide, the four seasons, and life and death, we must consider the possibility of a fourth factor in military domination, or a gradual return to army pre-eminance in control. This fourth factor may be called psycho or electro-alterations of mental

acceptance. A break thru in the field of positive control of mental capacity to accept or reject thought, will far surpass physical warfare.

With the certainty of rhythm then, either further advances in psychological warfare will take over, or a return to the land forces must occur. Realistically, it does not matter which military force is at the apogee of success.

Our main concern is the freedom and voluntary cooperation among the members of the world toward better international understanding. However, until this ethereal goal is achieved, we must be alert to the basic desires and needs, i.e., the need to live on this earth as it is.

More and more, the world's family of nations is becoming sensitive to the moral verdicts of idealistic organizations. This form of persuasion, this hall of judgment, is a form of and a beginning of psycho or electro-alterations leading to the acceptance of peaceful living.

Most geopoliticians tend to assume a nationalistic view. The one in this article forwards a hint of internationalism.

WHAT GEOGRAPHY DO YOU WANT?

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Madison College

Three reasons for studying geography are usually given by many persons when the subject is mentioned. Two of the reasons are: to know the location of places and to know people's occupations. The third reason often given is to know some important facts about both the world's large cities and about the leading countries. Comments on these reasons and others will be given later.

CONTRIBUTIONS FROM FORMS OF COMPOSITION

Geographers use the three forms of composition which are recognized by many persons including teachers, writers, and publishers. *Narration* is the simplest composition. This form gives a report of acts or events as they followed one another either at some time or at some place. The narration can correctly omit all statements of *how* or *why* the acts or events happened.

Description is somewhat more difficult because it often lists and states several conditions in a place or an area. Description may tell the condition of a piece of equipment. This form of composition may be used in stating the appearance of an individual plant or animal. It may tell what a person sees as he looks at a group of plants or animals. It may select and include a specific act or event. Likewise, it can acceptably omit a specific act or event.

Explanation must include either reasons or causes altho it may use or include both narration or description. Including reasons or causes is the most distinctive property of explanation when this form of composition is compared to the other two. The reasons may include why a selected crop is produced in a named section or area. The cause may be the conditions on the slope of a specific mountain which favors one type of tree growing there. This shows that explanation is a more difficult form of composition than either narration or description. A writer of a geography textbook needs to plan his use of narration and description for stressing explanations based on scientific investigations. Then, the geography textbook will rate high in quality.

Main Topics of Geography

Nearly all of the information belonging to geography can be grouped under six main topics:

a. Information regarding lifeless natural environment
b. Explanations of lifeless natural environment
c. Statements regarding man's undertakings and activities
d. Non-material arrangements as explanations of man's activities
e. Natural environment as explanations of man's activities
f. Man-planned material arrangements as explanations of man's activities

Thoro-Going Geography

Any geography text should include information which encourages thinking about the influence of all kinds of environment on people. The text needs explanations instead of being limited to statements of facts. Whenever all of the six main topics are well-represented thruout the book, the text meets requirements for being accepted as well-balanced or *thoro-going geography*.

An individual finds information belonging to a distinct geographical topic. Next, he gathers other statements or ideas regarding the topic. Then, he investigates to find how his first information and the other statements compare in value. A thinking individual

welcomes supported truth which agrees with ideas that he has been believing. He also welcomes supported truth which hurts or upsets opinions which he would choose to believe. He learns that he can keep his former ideas if they are supported by unrestricted investigation. The thinking individual organizes the information which he finds on a specific topic. All of this shows that he thinks more than he memorizes. Whenever geography includes the reasons for people's plans and undertakings, it is the thinking or *thoro-going* type of geography.

Each of the six main topics will be discussed briefly. Each topic will be illustrated in order to help show how its type of geography differs from the other five. The illustrations are taken from Dr. Ralph H. Brown's *Historical Geography of the United States*.

Three Divisions of Content

The six types will be grouped in three divisions: statement geography, descriptive geography, and thinking geography. *Statement* geography includes information regarding lifeless parts of man's surroundings or environment: Altitude, longitude and latitude, and distance lack life; statistics for each of these belong to life-lacking geography. Soil formation, stream behavior, movements of ocean water, measurements of weather and climate, and kinds of rocks and minerals are examples of this group. A person should observe that all of the above examples include objects and materials which are lifeless.

Descriptive geography includes statements regarding living activities. Road-building, cutting trees, fertilizing land, moving products, straightening streams, and landscaping areas are examples of this type. The changes of crops during their months of growth and seasonal migrations of animal life belong to this group. All these and many others, which are given when there are statements regarding living activities, are a part of descriptive geography.

Thinking geography must give a reason for a life activity. This type of geography includes the reason for activities and work done by living creatures. As an illustration, a person may notice the increased length of many streams which wind and curve while flowing between two points. Whenever man straightens the winding stream, an observer can explain the advantages from the work which was done. The thinking type may also be illustrated by reporting on how and why specific changes take place in fruit during

its growing season and ripening months. We need to contrast or compare thinking geography to statement and descriptive types. We need to emphasize that thinking geography does not give or include reasons or causes for a lifeless change such as tides or soil erosion. Since these parts of environment are lifeless, they belong to statement geography.

Lifeless Geography

The first two topics of the six listed in the fifth paragraph of this article include information regarding lifeless surroundings. Examples of lifeless items are given in the paragraph regarding statement geography. All of those examples influence life but they are not alive. *Natural environment* includes the surroundings as they would be if no person had even been in an area. Topic *a* includes the statement of facts pertaining to natural environment. As an illustration from Brown's text, this sentence concerns the coast of Maine and Nova Scotia: "Winter generally lasts here five months and a half; the snow is three or four feet deep." As one snow followed another, the unusual depth of three or four feet is influential in the area's surroundings. In the illustration, winter and snow belong to the natural environment. The quotation belongs to the type of information which may be called *statement geography—factual and lifeless.*

A second type of geography using lifeless information supplies the explanations of natural surroundings which can be observed by investigations. This sentence illustrates this type: "Since America lies to the westward of the Atlantic Ocean, we therefore feel less of the warming effect of the sea air in winter, as well as its cooling effects in summer." The text written by Dr. Brown does not state why the climatic results are caused by being west of the Atlantic. Continually moving from the west, the prevailing westerlies interfere with inland areas receiving the temperatures of air over the nearby ocean.

The second type of geography may be called *lifeless geography —explanatory.* Because both the first and second types use information gained from investigating natural environment, they belong to the natural science part of geography. A great quantity of the information in both types of statement geography avoids interfering with ideas which many people have believed during a long time and prefer to keep.

DESCRIPTIONS OF LIVING ACTIVITIES

A third type of geographical information differs from the first two because it includes statements of facts about man's undertakings and activities. Instead of being lifeless, it includes statements regarding the activities of living creatures. Then, this type of geographical information belongs to the social science type of geography. Social sciences are those studies which include information regarding the activities and undertakings of groups of people. They emphasize accomplishments and plans of groups rather than the acts and decisions of individuals. The plans of a farming neighborhood, the acomplishments of an organized army, and the arrangements made by a railroad company are examples of group activities. The study of these and a much longer list belongs to the study of groups in the social sciences.

This sentence illustrates the third type: "The French adopted the agricultural practices of the Indians and, even more nearly than did the English colonists, followed their methods of cultivation." This quoted statement is in regard to the activities of people as they followed a specific pattern of work. The label of this type may be *descriptive geography.*

ENVIRONMENTAL INFLUENCES FROM NON-MATERIAL

Material arrangements include the parts of man's surroundings which may be investigated by our special senses, such as touch or sight. Non-material arangements include the parts of our surroundings which we know are present but which we cannot contact by a special sense. For example, we cannot see laws but we can see a policeman. We cannot see education but we do see school buildings and textbooks. Laws and education are examples of non-material surroundings.

A fourth type of information in geography explains man's activities as they are influenced by man-developed ideas and non-material arangements. During the years that Florida was claimed by Spain, the colonists produced less than enough crops and other products to supply their needs. Both "financial aid" and "occasional delays" are mentioned in the following quotation from Brown's text. They are two examples of non-material arrangements and man-developed ideas which influenced early residents in Florida. The quotation is an illustration of the fourth type of geography.

"Far from being self-sustaining, Florida received direct financial aid from the Crown, and occasional delays in the receipt of annual installments of subsidy caused distress and anxiety in St. Augustine." This may be called *explanatory geography—non-material.*

INFLUENCES FROM NATURAL MATERIAL SURROUNDINGS

The fifth type of geography is distinct because it gives an explanation of man's activities and undertakings as they are influenced by natural environment. Because this type of geography supplies the bridge or connection between the other social sciences and the natural sciences, it becomes the subject's most distinct contribution. Along the coast of California, the Spanish explorers established missions which were several miles apart. These missions have been called a "mission chain." The following sentence is quoted as an illustration of the contribution of the fifth type of geography. "An earthquate occurred on December 8, 1812, that affected the whole length of the mission chain, requiring much new masonry. . . ." The sentence states the specific work of people which needed to be done when influenced by their environment. It may be labelled *explanation geography—natural material environment.*

INFLUENCES FROM MAN-PLANNED MATERIAL SURROUNDINGS

The sixth type includes natural environment as the influence to which man's undertaking are adjusted. The main difference between the sixth and the fifth type is that in the sixth type, man's undertakings are influenced by man-planned material arrangements. A sentence regarding the Capital Turnpike, a toll road from Philadelphia to Lancaster, is an illustration of this type. "Twenty-four feet wide, this pike was arched to shed water and substantially made by covering the graded surface with over a foot of rock and gravel." The sentence tells how man changed the land surface by moving and spreading rock gravel. It also includes the advantage gained by the changes arranged by man. This may be labelled *explanation geography—man-planned material.*

All of the illustrations were taken from Brown's *Historical Geography of the United States,* copyright 1948. The book is commended as an example of historical geography. The information in the first 110 pages of the book is typical of that included in the book's 538 pages. The writer of this paper used the six topics which have been described as distinct divisions under which the informa-

tion of the first 110 pages was carefully grouped. With that plan, 456 items were found from these pages as follows:

52 statement geography—factual and lifeless
8 statement geography—explanatory
137 descriptive geography
79 explanatory geography—non-material
68 explanatory geography—natural material
112 explanatory geography—man-planned material

Brown's book, which was written as a college text, shows the close resemblance between texts for both historical geography and integrated social sciences. (In integrated social science, a text plans to use history, government, geography, and some economics and sociology in all chapters of the book. Since all the subjects are put into one text, it is called *integrated* social science.) More than half of the ideas tabulated from the 110 pages of the Brown text belong to man's ideas and plans. This is unfortunate in our scientific age when there is a great need for people to consider the influence of our material surroundings. Personal opinions will generally cease being strong influencing factors whenever a person uses information acquired by scientific investigation. The information gained by investigation needs to be seen as it influences people's plans and undertakings.

Questions for Checking Contents of Texts

All of the first 110 pages of the Brown text were read without omitting any sentences or paragraphs. These pages are about one-fifth of the entire book and they form a typical section of that book. The contents of a typical section of successive pages from any integrated social studies text can be checked by using the six topics given in the fifth paragraph of this article. For finding the geographical information, the six topics can be given in the following questions:

1. What statements of fact are given regarding lifeless and natural environment?
2. What thorogoing explanations are given for the conditions of lifeless and natural environment?
3. What statements of fact are given regarding man's understandings and activities?
4. What explanations of man's activities as influenced by man-developed ideas and arrangements are given?
5. What explanations of man's activities as influenced by natural environment are given?
6. What explanations of man's activities as influenced by man-planned changes in material surroundings are given?

The first 110 pages of Brown's text needed 25 or 30 items which might have been placed in the group of "statement geography—explanatory." That number would have been less than half of the smallest number (68) in any group of life-explanation geography. This section of the book lacks balance when it has only 8 items in "statement geography—explanatory." When compared to the information which is needed for items in this group, the small number in the text leaves the student uninformed for the scientific age. If three or four times as many items of this group had been included, the book would have supplied more necessary information needed in this twentieth century. If the book had included a much larger number of statements of this type of geographical information, it would be nearer to being well-balanced or thorogoing.

The use of the above six questions will help a person in finding to what extent any text is well-balanced in its geographical information. They may be used as a dependable guide when any text is being considered for adoption.

Need Recently-Gained Geographical Explanations

The selection of texts for teaching either geography or integrated social studies is partly influenced by the teachers who use the texts. For example, a textbook author has used information from recent investigations which supply his facts in the second type mentioned, lifeless geography—explanatory information. Those statements may probably differ very much from information taught about 1920. The organized knowledge regarding soils, climate, and water resources has been influenced by much investgation. The teacher may say: "We were not taught geography that way, so we cannot use the text." This may be mental laziness in some cases. At other times, the teacher may say: "It is not the information which we want." This remark is not caused as much by mental timidity as by mental tact. The teacher realizes that in making statements using recent investigations, she risks reducing valuable congenial contacts with parents and other citizens.

Information gained from investigations of environmental factors has greatly changed twentieth century explanations. The investigations continue for each of these factors: climate, soils, streams, and water resources. Present-day geography texts written for elementary schools have generally shown a close contact with nineteenth century information regarding these factors. A writer's

book was rarely adopted whenever he ventured to use more recently gained information. The recently found information shows that there are some inaccurate statements in books written in the nineteenth century. If the texts, including recently gained information, are adopted, older citizens will probably ask the teacher searching questions. They may ask why recent information has crowded out nineteenth century statements.

The information regarding geographical topics has been kept close to nineteenth century ideas when texts have been written for teaching science in elementary schools. Unfortunately, property owners object to information gained by investigation if it seems to include facts which can reduce the sale value of property. Likewise, the teaching of information in public schools is influenced by what tax-payers will approve.

GEOGRAPHICAL CONTENT LIMITED IN HISTORY TEACHING

Teachers of history discuss events which were influenced by the geographical information accepted when the event occurred. Those teachers have little reason for keeping in contact with twentieth century investigations regarding natural surroundings. Their basic information regarding the explanations of natural surroundings belongs to the nineteenth century. The acceptance of this out-moded information as adequate for present-day use interferes with increasing a recent understanding of our material surroundings.

Teachers of history state that they use geography in teaching their subject. The geographical information which they use is largely statistical information, areas, distances, and location of places. They rarely use thorogoing geography. When this situation is called to curriculum planners' attention, the expected remark will be: "History is helped by having the two subjects—history and geography—taught together." Too often the impression is given that in this combination the pupil is getting all of the geography which he will ever need. This impression deprives the pupil of the thorogoing geography which he rightfully should be given while in school.

THOROUGH-GOING GEOGRAPHY HELPS WORLD CITIZENSHIP

Typical Americans practice offering the helping hand for any person in distress because of calamities. They believe that they

should contribute money and goods to victims of misfortune and also should guard and protect the mentally and physically handicapped. Then, beyond their own boundaries, they cancel many of their commendable attitudes by asking residents of other countries to be like Americans. The other nationalities have very different surroundings so that they easily make mistakes if they attempt to copy American customs and methods.

A world citizen considers the plans of house-building, clothing, crop-growing, transportation, and health improvement in each part of the world. He urges other peoples to develop plans which will be highly successful as adjustments to their nation's environment. He can state that he wants to see education and every other benefit of government available to all classes within each national area. He can urge that each nation find out about its national resources thru the use of present-day scientific investgations. He commends other nationalities when their patterns of life help all people within their areas to make substantial improvements. He recognizes that the nationalities are not queer but are highly intelligent whenever their successful patterns are different from Amerjcan arrangements.

Americans need to study geography which includes explanations of soils, water resources, stream behavior, and climatic conditions in all parts of the world. After Americans, both at home and abroad, have these explanations of surroundings, our citizens will be better prepared for understanding other natural environments. Then, they will do and say those things which fit into high quality world citizenship. At different times, statements and acts of Americans have caused other nationalities to reduce their confidence and respect for America. Some Americans have acted and made statements which showed their lack of a geographical understanding of the environment of other countries.

The geography which is taught should plan for explanations of both natural and man-planned features in each part of the world. In American schools, statements without explanations are too often made about geographical condtions influencing people in other countries. These statements will continually cause other nationalities to dislike Americans' irritating attitudes. All nations need to see both the advantages and disadvantages of every part of the world. They need to see other parts of the world from the viewpoints of permanent residents of each part. Information supplied to Americans since World War I has often interfered with thoro-

going world citizenship. Too often, the two words *world citizenship* have remained high-sounding words.

COMMUNITY RESIDENTS INFLUENCE SUPERFICIAL GEOGRAPHY

Several conditions appear when a check is made after people say that they want geography. They cautiously want restrictions on the topics which will be investigated. Many people frequently use the home state as a sufficient standard for measuring natural resources in all other states. In addition, when measuring accomplishments and expectations, the home state supplies the standard. Residents may object to information which presents limitations or hindering conditions belonging to the area in which the people live. They prefer to avoid knowing the natural environment of other countries. However, the attitudes shown after inquiries have been made into what they want indicate that they are supporting superficial geography. Superficial geography is the opposite of thorogoing geography in that it is satisfied with statements of statistics and similar facts.

Scientific investigators gather information regarding all parts of the world. Textbook writers have too often avoided using ideas from recent investigations because these items often conflict with ideas which many persons want to believe. The day may come when persons who say that they want geography will urge the use of this scientifically gathered information. While using this recently gathered information, they will also see how well people's customs and methods fit into the environment of their home countries. They will not only ask questions about an area's problems but also about the methods used for controlling and reducing each problem.

The essential kind of geography emphasizes how surroundings influence people's actions today and what people can do in advisably planning for the future. The first paragraph of this paper mentioned location, occupation, and unorganized facts regarding cities and countries. In the distant future, more Americans may reduce their emphasis on the importance of lists of these kinds of geographical information. The residents of any school community can have the essential kind of geography if they insist that it can be developed in the schools.

STARCH AND DETERGENT RELIEF MODELS

SHARON KUESTER
University of Nebraska

An unusual medium for the making of relief models is a mixture of liquid starch and detergent. The proportions of four tablespoons of liquid plastic starch to one cup of powdered detergent may be used. This mixture should be stirred with a spoon or beaten with a rotary egg beater. When these ingredients are thoroly mixed, the batter should resemble boiled icing.

The most satisfactory background for the model is plywood or plasterboard. Cardboard may be used, but it has a tendency to turn up at the edges or to warp. If plywood is used, the surface should be sanded carefully, and then the outline of a map traced on the surface.

Spread the mixture evenly inside the map outline. Mountains, plateaus, rivers, and other physical features desired may then be added. The mixture will begin to harden quite quickly, so one should work as quickly as possible. If it does get too thick to work with, a little water may be added.

One particular advantage this type of model has over ones made of salt and flour is that the starch and detergent model will not crack, no matter how thickly the mixture is applied.

Let the model dry at least six or eight hours, before continuing work on it. If more features such as mountains are desired, they may be added now. After the surface is thoroly dry, the model may be painted with tempra paint.

It is wise to put some sort of preservative on the map. Two coats of shellac are satisfactory. This not only gives the map luster, but keeps the paint from chipping. Clear varnish may also be used.

This type of medium is very valuable is presenting the three dimensional features of a country or smaller units of the earth's surface. Grade school, high school and even college students can enjoy and benefit from making models with these materials.

Convention City for 1959

The 45th Annual Meeting of the National Council for Geographic Education will be held at the Sheraton-Cadillac Hotel, Detroit, Michigan, November 27 and 28, 1959. Program plans are now underway.

NATIONAL COUNCIL AT WORK

OTIS WILLARD FREEMAN RECEIVES THE DISTINGUISHED SERVICE AWARD FOR 1958

The following citation was read at the Annual Dinner held in the Hotel Statler Hilton, New York City, Friday evening, November 28, by Howard H. Martin, Chairman of the Distinguished Service Award Committee:

At its 1931 meeting the National Council created a Distinguished Service Award to honor those who have made outstanding contributions to geographic education. The criteria for this honor are broadly conceived. They include teaching and teacher-training; original research in geography; the publication of significant articles, books and maps; constructive participation in the work of the National Council; and the advancement of geography as a profession. Selected by a committee after careful deliberation the recipient of this award is added to the all-time honor roll. Tonight, for the 25th such award by the Council, the committee has selected *Otis Willard Freeman*.

Joining the faculty of Eastern Washington College of Education Dr. Freeman became professor of geography, head of the science department and, eventually, president of the college. After retiring from administrative work he spent four years teaching in Pennsylvania, his span of college activity having covered a third of a century.

When Dr. Freeman began work in the Pacific Northwest there was much pioneering to be done and few geographers to do it. He had the happy faculty of winning the cooperation of associates for any joint venture, such as the writing of a regional textbook or the formation of a new organization. The Association of Pacific Coast Geographers was one such venture initiated by Freeman, who became its first president and then its first Yearbook editor. Various regional studies and textbooks followed as geography expanded. Dr. Freeman addressed countless teacher's groups, spoke before state education associations, gave papers at national geography meetings, served as a governmental consultant, and later accepted visiting professorships at several universities.

His many publications have included much basic research: for example, his contributions to the physiography and general geography of the Northwest. Scientific papers and articles have appeared in the major geographical journals, as well as in technical journals of science, mining, meteorology and geology. He has been editor of *Northwest Science*, geography editor for the magazine, *Education*, and is currently an associate editor of the JOURNAL OF GEOGRAPHY, *Economic Geography*, and of the *Pacific Northwest Quarterly*. In the National Council Dr. Freeman served many years as a state director then became active nationally, holding various offices including that of president in 1954.

Freed from the routine of the classroom last June, he now lives and writes in Seattle. To his official retirement title of Emeritus Professor and President Emeritus of Eastern Washington College there might well be added another honorary title: Geographer Emeritus of the Pacific Northwest.

President Phillips, on behalf of the committee it is my privilege and pleasure to present Dr. Otis W. Freeman. He is entirely worthy to receive the Distinguished Service Award, the highest honor which the National Council for Geographic Education may bestow.

Distinguished Service Award Committee

HOWARD H. MARTIN, *Chairman*
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MARY VIOLA PHILLIPS, *President NCGE*
JOHN W. MORRIS, *Secretary NCGE*
New York, November 28, 1958

CONVENTION CITY FOR 1959

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ENTERING A NEW YEAR

The Secretary's report of the Forty-fourth Annual Meeting at New York City will appear in a forthcoming issue of The JOURNAL. The retiring president wishes to take this opportunity to thank all National Council members, and especially officers and Board members, committee members and program participants for your continued efforts and contributions which helped to make 1958 another year of progress for our Council. Your new president is Dr. Adelbert K. Botts, Trenton State College, Trenton, New Jersey.

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

On November 5, at the invitation of Secretary Arthur S. Flemming of the Department of Health, Education and Welfare your president, and heads of other national organizations, participated in a day-long conference on some of the vital educational issues. The topics discussed were: 1) Education and International Relations, 2) Role of Office of Education in Statistics and Research Service including the Mass Media, 3) National Defense Education Act of 1958 (discussion of various titles), 4) Goals for American Education, and 5) Other Problems and Issues in American Geography.

MARY VIOLA PHILLIPS, *President*

FELLOWS OF THE NATIONAL COUNCIL

The Constitution of the National Council for Geographic Education states that any member in good standing for five consecutive years shall be designated a *Fellow*. Those attaining this status as of September 15, 1958 are: Phillip Bacon, Willard G. Baker, Walter H. Beckman, Frances M. Brennan, W. E. Campbell, Robert Durland, Eleanor Florance, Madeline F. McNulty, William S. Houston, Malcolm E. Mellott, Harold W. Otte, Robert B. Polhemus, Lt. Col. Peter Polyenko, Ova C. Smith, David S. Snyder, Frank E. Whedbee and David L. Zufelt.

If any member of the National Council has not received recognition for his five years of continuous affiliation, please write to the Secretary of NCGE, University of Oklahoma, Norman, Oklahoma.

CONFERENCE PARTICIPATION

The 1958 Annual Meeting of the *Council on Cooperation in Teacher Education* of the American Council on Education was held at the Shoreham Hotel, Washington, D.C., on October 30-November 1. It had as its theme "Programs of Graduate Education for Teachers, With Special Emphasis on the Academic Fields." Delegates of the National Council for Geographic Education attending the Seventeenth CCTE Annual Meeting were Edward L. Beller, Supervisor of Geography, Secondary Schools, Baltimore City Schools, Baltimore, Maryland and Wilhelmina Hill, Specialist for Social Science, U.S. Office of Education, Washington, D.C. The delegates representing the NCGE will make a written report to the Executive Committee at the New York meeting.

PUBLICATIONS

The following is a list of NCGE Publications since January 1, 1958:

	Price
Professional Papers	
16. Forces Contributing to Changes in Geographic Education	.25
17. Population Growth and Its Impact on Geographic Education	.25
18. The Elementary Social Studies: Sense and Nonsense in Integration	.25
19. Changing Emphasis in Geographic Education	.25
Leaflets	
1. How to Organize a Geography Club	.10
"Do It This Way" Series	
1. Geography Via Television (Phelps) (A 32-page booklet with 11 illustrations about methods and techniques for teaching by television.)	1.00
Other	
1. INDEX to the JOURNAL OF GEOGRAPHY (1922-1956) Cloth-Back	5.00
Paper Back	4.00
2. Careers in Geography (A brochure that will aid high school and college advisors)	Free

These publications may be obtained by writing to the Secretary, National Council for Geographic Education, Norman, Oklahoma (University of Oklahoma)

MARY VIOLA PHILLIPS, *Past President*

EDITORIAL NOTES AND NEWS

Have you seen the McGraw-Hill Children's World-of-Science Library? This library contains seven volumes and sells for a little over $2.00 a volume. If you are interested, write to the McGraw-Hill Book Company, Inc., 330 West 42nd Street, New York 36, New York for a leaflet telling about these seven volumes.

According to the Twentieth Century Fund "Americans buy more from Latin America than from any other part of the world—almost one third of our imports, notes a survey of the Twentieth Century Fund. Canada is second, followed closely by Western Europe and Britain."

The following appeared in the April 11, 1958 circular from the U. S. Department of Health, Education, and Welfare: In fields such as science and mathematics, there is evidence that pupils who have learned to read slowly and carefully achieve more than fast readers, according to Arthur E. Traxler, executive director of the Educational Records Bureau.

Dr. Traxler's comments are contained in a U. S. Office of Education publication, "Improving Reading in the Junior High School." He also observes that all pupils would benefit if they were taught to vary their reading speed according to the difficulty of the material and their purpose in reading. Children should be taught early in their school career to make such adjustments, he says.

According to the Twentieth Century Fund "Wood is one of the world's most versatile raw materials. It is still the chief building material and it supplies at least two thirds of mankind with fuel for heating and cooking, notes a Twentieth Century Fund report. As much as 90 per cent of all paper is made of wood. More than two thirds of the world's railways have wooden crossties."

Geographical Materials Received

Renner and Brooks. **Directed Studies in Introductory College Geography.** Appleton-Century-Crofts, Inc., 35 West 32nd Street, New York 1, New York. 1958. vii and 167 pages with 29 exercises. $2.36.

White, Renner, and Novak. **Essentials of College Geography.** Appleton-Century-Crofts, Inc., 35 West 32nd Street, New York 1, New York. 1958. viii and 580 pages with photographs, maps, and index. $6.00.

Zoe A. Thralls. **The Teaching of Geography.** Appleton-Century-Crofts, Inc., 35 West 32nd Street, New York 1, New York. 1958. 339 pages with graphs, photographs, and index. $3.75.

Richard M. Highsmith, Jr. **Atlas of Oregon Agriculture.** Department of Natural Resources, Oregon State College, Corvallis, Oregon. 1958. 42 pages with maps, tables, and graphs. $1.00.

S. A. Cooper. **Concise International Dictionary of Mechanics and Geology.** Philosophical Library, Inc., 15 East 40th Street, New York 16, New York. 1958. 400 pages. $6.00.

Joseph E. Williams, ed. **World Atlas.** Prentice-Hall, Inc., Englewood Cliffs, New Jersey. 1958. 26 pages with maps and alphabetical index. $9.00.

Hoffman and others. **Life in Different Lands.** The Steck Company, Ninth at Lauaca, Austin 61, Texas. 1958. 111 pages with maps, illustrations, and unit tests. 68¢.

Hoffman and others. **Life Near and Far.** The Steck Company, Ninth at Lauaca, Austin 61, Texas. 1958. 96 pages with illustrations, maps, and unit tests. 68¢.

Edith Lambert Sharp. **Nkwala.** Little, Brown & Company, 34 Beacon Street, Boston 6, Massachusetts. 1958. vi and 125 pages with illustrations and glossary. $3.00.

Ruthven Todd. **Tan's Fish.** Little, Brown & Company, 34 Beacon Street, Boston 6, Massachusetts. 1958. 58 pages with illustrations. $3.00.

Clawson and Held. **The Federal Lands: Their Use and Management.** The Johns Hopkins Press, Homewood, Baltimore 18, Maryalnd. 1957. xxi and 501 pages with photographs, tables, graphs, appendicies, and index. $8.50.

Krutilla and Eckstein. **Multiple Purpose River Development: Studies in Applied Economic Analysis.** The Johns Hopkins Press, Homewood, Baltimore 18, Maryland. 1958. xiv and 301 pages with graphs, tables, and index. $4.50.

Harvey S. Perloff. **Education for Planning: City, State, and Regional.** The Johns Hopkins Press, Homewood, Baltimore 18, Maryland. 1957. x and 189 pages with appendicies and index. $3.50.

Bruce C. Netschert. **The Future Supply of Oil and Gas.** The Johns Hopkins, Press, Homewood, Baltimore 18, Maryland. 1958. xi and 134 pages with tables and index. $3.00.

T. W. Freeman. **Geography and Planning.** Rinehart & Company, Inc., 232 Madison Avenue, New York 16, New York. 1958. 191 pages with sketched maps and index. $1.50.

Philip L. Wagner. **Nicoya: A Cultural Geography.** University of California Press, Berkeley 4, California. 1958. iv and 250 pages with tables, maps, and sketches. $1.25.

John C. Caldwell. **Let's Visit Southeast Asia: Hong Kong to Malaya.** The John Day Company, 62 West 45th Street, New York 36, New York. 96 pages with illustrations. $2.95.

Leet and Judson. **Physical Geology.** Second Edition. Prentice-Hall, Inc., 70 Fifth Avenue, New York 11, New York. ix and 502 pages with illustrations, tables, graphs, glossary, appendix, and index. $7.50.

Mary E. Morris. **Index to the Journal of Geography.** Battenburg Press, Norman. 1958. 292 pages. $4.00.

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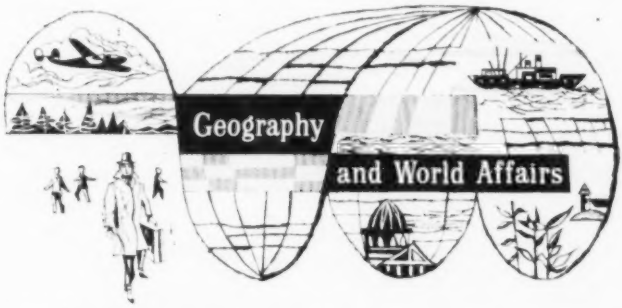

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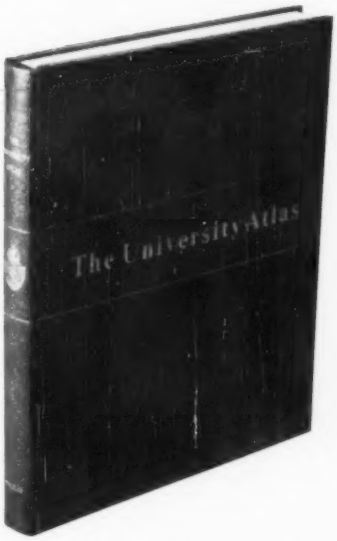

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